

Main Issues Report 2013

Local Nature Conservation Sites

1. The need for Local Nature Conservation Sites

- 1.1 Aberdeenshire Council has a duty under the Nature Conservation Scotland Act (2004) to further the conservation of biodiversity when carrying out all its functions and to take measures to enhance biodiversity where possible.
- 1.2 Scottish Planning Policy states that ‘international and national designations can be complemented by local designations which protect, enhance and encourage the enjoyment and understanding of locally important landscapes and natural heritage. Local designations should be clearly identified and protected through the development plan’. The identification and protection of Local Nature Conservation Sites by Local Authorities was an action identified in the Scottish Biodiversity Strategy Action Plans 2004-8.
- 1.3 The loss of habitats and species is well documented and highlights the need for action to halt this decline. The identification and protection of sites which support UK Biodiversity Action Plan priority habitats and species is one measure which can be taken to protect biodiversity and supports the implementation of the North East Local Biodiversity Action Plan in which Aberdeenshire Council is a partner.

2. Selection of Local Nature Conservation Sites

- 2.1 In 2004 a document entitled ‘Establishing and Managing Local Nature Conservation Sites Systems in Scotland’ was produced by Scottish Natural Heritage in association with COSLA which set out guidelines for introducing a more coherent approach across Scotland to the selection and naming of sites of local and regional importance for biodiversity and geodiversity. Local Nature Conservation Sites (LNCS) include both Local Biodiversity Sites and Local Geodiversity Sites. In practice, many sites have both geodiversity and biodiversity interest as interesting rock types often support a valuable flora. The document sets out the criteria against which potential sites should be assessed.
- 2.2 Within Aberdeenshire, on identification in the Local Development Plan Local Nature Conservation Sites will replace Sites of Interest to Natural Science (SINS) which have been used by Aberdeenshire Council to identify areas of regional value for nature conservation. SINS were identified following a Study of Environmentally Sensitive Areas (SESA’s) carried out in 1977. It was widely recognised that the SINS system was out of date and urgently required a review to reassess sites, consider new candidate sites and to provide more accurate site boundaries.

3. Definition of a Local Nature Conservation Site (LNCS)

3.1 a) Local Biodiversity Site

Local biodiversity sites are places of importance for biodiversity, where protecting and enhancing biodiversity can make an important contribution to the objective of the Scottish Biodiversity Strategy. Local biodiversity sites also contribute to the quality of the local environment, and may provide opportunities for locals to find out about, and take pride in, their local biodiversity.

3.2 b) Local Geodiversity Site

These sites provide examples of geology and geomorphology (The branch of geology and physical geography concerned with the nature, origin, and development of the physical features of the earth's surface) of regional and local importance, in particular areas which are visible and accessible so that people can enjoy and find out more about Earth heritage.

4. Criteria for Assessment and Selection of Local Nature Conservation Sites in Aberdeenshire

4.1 The following criteria for the selection of LNCS in Aberdeenshire were agreed by the Local Nature Conservation Sites Panel (see section 5 below)

4.2 a) Local Biodiversity Sites

4.2.1 i) Species Diversity

An assessment was undertaken for each site to determine whether the number of species recorded was greater than what might be expected to occur within similar habitats present in NE Scotland. This takes account of the fact that some habitats are naturally species poor. Species diversity generally refers to plant species but does also take into account a variety of other species groups relevant to that particular site, where information was available.

4.2.2 ii) Species Rarity

This refers to the species recorded on the site that are considered to be rare, endangered or vulnerable in a European, national or local context, including those on the Scottish Biodiversity List and LBAP Priority species. Not all sites have been equally well surveyed for less well known groups.

4.2.3 iii) Important populations of Species

Some sites are important because they hold a large proportion of the population of the species of the local area. These sites may not score highly on other criteria.

4.2.4 iv) Habitat rarity

This refers to the rarity of a habitat within the national and local context. The presence of UK BAP Priority habitats was considered, together with the presence of habitats for which the North East is a stronghold.

4.2.5 v) Habitat naturalness

This refers to the degree of current and historic human intervention in natural processes for each habitat type. The origins of a site were assessed from Integrated Habitat System (IHS) survey, site description or historical maps.

4.2.6 vi) Habitat or site extent

Larger sites are considered in general to be more ecologically stable and to support a greater diversity of species, but this does to some extent depend on the habitats

present. Extent of habitats within a particular site were assessed against extent of similar habitats within the local area.

4.2.7 vii) Connectivity

This is a measure of the physical links between broadly similar habitats found on a site and in the surrounding countryside, and the potential for new links to be created.

4.2.8 viii) Other factors

Additional factors which were taken into account included how threatened or fragile the site was considered to be. Some sites are vulnerable to development as a result of their location whilst others are sensitive to disturbance or damage through high levels of use. Opportunities for access, informal recreation and education were also considered.

4.3 b) Local Geodiversity Sites

Good examples of geomorphological or geological sites are very valuable for education and interpretation and it is important that a measure of protection be given to these sites to preserve local distinctiveness.

i) Assessment of features present

4.3.1 This describes the features present such as landforms, fossils, rock types, surface processes and mineralisation. The quality of features present was graded from good to poor.

ii) Rarity of geology type

4.3.2 The rarity of features present was assessed in a European, UK, Scottish and NE context.

iii) Extent of feature/exposure

4.3.3 The extent of features present was recorded from large to small with a rough estimate of coverage in m².

iv) Educational value

4.3.4 Sites were assessed for value for different educational groups including schools, university and for the general public.

v) Access

4.3.5 Ease and safety of access to a site was included within the assessment, particularly where a site is considered to be of educational value.

vi) Other factors

4.3.6 Cultural value - The cultural aspects of sites can be a factor in their designation and this was included in the assessment. This included association with famous people or events, economic activities such as quarrying, or other Earth Science associations.

4.3.7 Vulnerable or fragile – This assessed how threatened or fragile the site was considered to be. Some sites are vulnerable to development because of proximity to sand/gravel extraction enterprises whilst others may be sensitive to disturbance or damage through high levels of use.

7. Identification of LCNS

- 5.1 Sites considered as potential LNCS included all former SINS together with Local Nature Reserves, Scottish Wildlife Trust Listed Wildlife sites and selected sites identified within the Lowland Raised Bog inventory and ancient woodland register.
- 5.2 Where international or national designations are already in place on a site considered, identification as a LNCS was only considered where the coverage of local or regional interest was greater than the area covered by the existing designation, or where additional features than those listed in the citation were thought to be of interest.
- 5.3 All potential sites were surveyed to provide accurate and up to date information on which to base the assessment of the site. This included habitat and geological surveys as appropriate to each site, together with invertebrate or other surveys as required. Additional data was provided by the North East Biological Records Centre (NESBReC) on the species recorded from each area.
- 5.4 Collated data for each site was used to fill in an Assessment Form. This was presented to a scientific panel made up Scottish Natural Heritage together with local experts in geology and geomorphology; botany; entomology; ornithology and mammals. This panel undertook an initial assessment of each site in terms of whether it met the criteria for selection, considered whether any further information was required and suggested a boundary for each site.
- 5.5 These sites were then considered for inclusion as a Local Nature Conservation Site by a wider Panel made up of a range of landowner, charity and statutory bodies. This group provided a wider input into the discussions on each site; considered the recommendation of the Scientific Panel regarding whether the site merited identification as LNCS; and agreed a boundary.

6. Summary of LNCS within Aberdeenshire

- 6.1 A total of 95 sites have been identified as LNCS. These vary considerably in size from a few hectares to extensive stretches along river valleys. The sites include a range of habitats such as lowland raised peat bog, woodland, grassland, wetlands, coastal sand dunes and lochs. Features of geological and geomorphological interest include exposures of various rock types, deposits such as the Buchan Gravels and glacial features. The majority of sites are in private ownership with a few owned and managed by public bodies or charities.
- 6.2 The majority of Aberdeenshire's coastline has been included within a LNCS reflecting the high biodiversity and geological value of these areas. Although much of the coastline is already covered national designations, the area considered to be of local interest was often greater. The national designation for many coastal areas covers their geological interest only. However, these sites often support habitats and species of regional value. Much of Aberdeenshire's coastline is used by breeding seabirds which feed offshore and, the coastal waters are important for cetaceans and seals. The offshore boundary for LNCS has therefore been drawn approximately 2km out to sea to flag up the biodiversity interest of these areas.

7. Actions for the Local Development Plan

- 7.1 The mere act of noting that there is a biodiversity interest on these sites provides them with a degree of protection under the existing policies of the plan, but review and specific

identification of these sites as “Local Nature Conservation Sites” gives an added level of protection and provides up-front and available information on their value. It allows prospective developers to note the presence of these sites, note the nature conservation interest and either avoid them or, preferably, include measures to enhance and expand them as part of the provision of open space associated with their site.

- 7.2 Survey of the existing SINS designation took place 35 years ago and the criteria for choosing such sites, and indeed the sites themselves, may have changed in the intervening period. Examples exist where the existing SINS designation is now inappropriate due to:
- land use changes on or adjacent to the site;
 - the site is no longer of sufficient interest or value to justify it’s continued identification; and / or
 - greater clarity that the LNCS review has provided on the extent of the site of interest.
- 7.3 The creation of a new designation provides confidence in the interests present as well as rationalising the sites themselves, and is inherently to be welcomed.

8. Conclusion

- 8.1 The extensive research undertaken by the Local Nature Conservation Site Review board leads to a requirement to change the plan. While current policies provide a means to protect the important heritage features of these sites, their identification provides certainty and an explicit recognition of their local importance. Even if it is ultimately decided not to include Local Nature Conservation sites in the LDP the work that has been undertaken achieves a significant improvement for the conservation of biodiversity in Aberdeenshire.
- 8.2 The existing designations are out of date, misleading, and we can not have the greatest confidence in the areas that they show. In some areas they are acting as an unnecessary constraint on development, discouraging applications due to the expectation that an ecological survey will be required. The confirmation, based on good science, of these areas of greatest interest removes an unnecessary burden on prospective developers. The greatest benefits would be achieved by publishing the areas of local importance for nature conservation within the plan.
- 8.3 Other approaches have been considered and dismissed on the basis that showing the specific sites in the development plan as a designation removes any dubiety as to their position in policy, and carries significantly more weight in decision making than an ad hoc survey at the time of an application. Instead identification in the proposed plan, allowing public debate on the merits of the designation, provides clarity and precision to be applied in pursuit of wider nature conservation objectives.

References

1. Guidance on Establishing and Managing Local Nature Conservation Site Systems in Scotland. (2006)

Appendix 1 Proposed Local Nature Conservation Sites

Below is a detailed summary of the interest of each proposed Local Nature Conservation Site. It should be noted that in addition to their own individual interests, these sites contribute to a network of sites supporting habitats and species throughout Aberdeenshire.

1. Aberdour to Kinnaird Head Coast

The western part of this coastline contains areas of high seacliff with sandy bays while to the east, between Rosehearty and Fraserburgh, is an area of relatively low lying coastline with a wave cut platform, rocky shores and areas of intertidal mud and sand flats. The site is backed in places by a narrow fringe of sand dune or salt marsh. This coastline is important for passage and wintering seaduck and waders and is of particular importance are the wave cut platform and kelp beds. The fields up to 1km inland from the coast are also important for wintering and feeding birds. Sections of the coast are botanically rich and the site supports some rare molluscs. Geological interest is present in the form of exposures of Old Red Sandstone, metamorphic rocks and other features.

2. Annies Dam

This site contains an area of wet ground created by a dam. Habitats present include birch woodland, wet woodland, rush pasture and acid grassland. The site supports a good diversity of plant species including some locally uncommon sedges.

3. Arbuthnott

This site lies along the Bervie Water and supports valuable semi-natural woodland and riparian habitats. A good diversity of woodland and wetland plants are present with locally important species such as blue water-speedwell.

4. Arnhall Moss

A relatively small site within Westhill with a variety of habitats including birch woodland and scrub together with a small area of swamp. For its size, the site has a good diversity of plants. The site is very popular with local residents and is used by local schools for educational visits.

5. Auchlossan

This site is made up of arable and pasture farmland on land which was formerly a loch. Patches of swamp and rush pasture remain, together with a few fairly permanent ponds. The site is important in winter for feeding and roosting birds with large numbers of pink-footed geese, gulls, mallard, teal and wigeon, together with smaller numbers of snipe and lapwing. The site also supports a number of breeding wading birds.

6. Barmekin Wood

A relatively large site with a good mosaic of habitats including heathland, rush pasture and birch woodland. These habitats have a good diversity of plants including some locally rare species such as mossy stonecrop and smooth-stalked sedge.

7. Benholm

The Burn of Benholm is an important geological site and is of outstanding importance for establishing the sequence of glacial events, ice movement patterns and environmental changes that occurred in north-east Scotland during the Late Quaternary. The narrow den supports and attractive area of lowland woodland with a typical woodland ground flora which is slightly more base rich than other woodlands in the area.

8. Bennachie

This extensive site covers a mixture of associated upland and lowland habitats. On the lower slopes semi-natural and long established woodland are present together with planted forests, some of which are pine. Of particular note are the oak woodlands at Paradise Wood and Tillifoure. The upper slopes of Bennachie and surrounding hills are dominated by dry heathland with small patches of wet heath and mire. Geological interest is present in the exposed outcrops of granite on the peaks of Bennachie and the deeply weathered granite in a quarry at the foot of Bennachie.

9. Bin Hill

Bin Hill forms a large area which is of geological interest due to the presence of a major complex of igneous rocks, together with an area of 'contaminated rock' acting as an independent intrusion. Although primarily a site of geological interest, there are botanically rich areas at the Burn of Carnie and parts of Bin Forest which contain locally important pine woodland species.

10. Blackdog to Bridge of Don Coast

This is an extensive coastal site made up of coastal sand dunes, grassland, wet and dry heathland, gorse scrub and small patches of planted woodland. These varied habitats contain a diverse range of plant and invertebrate species. The site is of significant ornithological interest with large numbers of sea ducks offshore in the winter and breeding birds within the dunes and grassland. Large numbers of roosting and feeding birds periodically use agricultural fields adjacent to the LNCS.

11. Breda Hill

Breda Hill has been identified as one of very few remnants of Caledonian pine forest within Aberdeenshire. Although small this site represents an important area of pine woodland habitat. Dry heathland and upland birch woodland are also present. This site supports a good diversity of moorland and woodland plant and bird species.

12. Burreldale Moss

Burreldale Moss contains a variety of wet habitats including fen, bog, lowland raised bog, rush pasture and swamp. On the drier ground around the margins woodland, dry heath and acid grassland occur. Many of these habitats are relatively natural with a rich diversity of plants including some rare in north east Scotland such as rigid hornwort and whorled caraway.

13. Cairnbulg to St Combs Coast

This stretch of coastline is of particular importance for its geology with good examples of rock exposures along the shore and a raised beach/ fossil cliff/sand dune complex. The raised beach and fossil cliff assemblage is one of the north-easternmost occurrences of such a landform in the UK, and forms part of a wider range of raised shorelines which reflects patterns of former glacial ice thickness variation across Scotland. The coast is important for breeding, overwintering and feeding birds.

14. Cairnhill, Culsalmond

This site is made up of a disused quarry together with adjacent habitats. The quarry is of geological value as it contains a good exposure of metamorphic rock. The surrounding land supports a mosaic of wet and heathland habitats including fen, rush pasture, wet woodland and acid grassland which together contain a good diversity of plants.

15. Candyglirach

An extensive area of lowland raised bog, with areas of birch, conifer and wet woodland, acid grassland and rush pasture around the margins. Within these habitat is a good diversity of

wetland, heathland and woodland plants. The site is also good for insects such as the locally important small pearl bordered fritillary.

16. Carnie Woods

A relatively small site supporting a variety of habitats including pine forest, conifer plantation, semi-natural woodland, scrub, acid grassland, heathland and a small area of valley mire. The woodland is locally important for red squirrel populations and the various habitats have a good diversity of wetland and heathland plants. The site is well used for informal recreation and provides an important linkage between Westhill and the surrounding countryside.

17. Catterline Den

Catterline Den is a very narrow, steep-sided, rocky, meltwater gorge with mature beech woodland and gorse scrub in the southern part of the den. Although small, this site is important for two locally uncommon plant species, brittle bladder fern and wood vetch.

18. Cluny

This site is relatively small but it contains a diverse mix of wetland habitats including some very good areas of wet woodland together with open water, fen and swamp. These habitats have a good variety of woodland and wetland plants, including a large population of common skullcap which is rare in the north east Scotland.

19. Corby, Bishops and Lily Lochs

This site lies over the boundary of Aberdeenshire and Aberdeen City and is made up of open water together with associated wetland and woodland habitats. The site has a very rich botanical flora and supports a good variety of invertebrates. The lochs are important for breeding, roosting and feeding birds.

20. Correen Hills

This is an extensive upland site with dry heathland on the higher ground and some rich semi-natural oak and birch woodland on the lower slopes. This site is noted in particular for its ornithological interest with a good assemblage of upland breeding birds. A large breeding colony of Common Gulls has now been mostly abandoned.

21. Cortes Reedbed

Cortes Reedbed is a small site with open water, reedbed and fen habitat. Although small the site is important in a north-east context due to the relative scarcity of reedbed habitat. The site supports a good diversity of wetland and open water species.

22. Cottown Woods

This site is made up of a mosaic of woodland types together with a small area of fen habitat which together contain a good diversity of plant and invertebrate species. The site forms part of a network of woodlands within the local area.

23. Cowbog Raised Bogs

A series of four lowland raised peat bogs at Cowbog, Corthie Moss, Cowieshall and Cairnywhing. All have been cut over in the past but retain some areas of primary peat. They are mostly still very wet and support a good diversity of peatland and wetland plants.

24. Craig Hall

This site is of geological value due to the presence of a suite of unusual xenoliths (a rock fragment which becomes enveloped in a larger rock) in granitic intrusive rocks.

25. Craigmancie

This site is located on the steep sided slopes Deveron valley with a large area of species rich woodland, including ash woodland which is a relatively uncommon habitat in lowland Aberdeenshire. Other habitats include rush pasture, lowland fen and acid grassland together with riparian habitats alongside the River Deveron. The site as a whole supports a high diversity of plant species.

26. Craigs of Succoth

This is one of only a few sites in north-east Scotland where serpentine rocks outcrop at the surface and give rise to rare serpentine grassland, flushes and heathland. A number of locally uncommon plant species such as spring sandwort are associated with the serpentine rocks. Other habitats include wet heathland and rush pasture on the lower ground and dry heathland on the drier slopes.

27. Crathes

The woodlands forming part of the Crathes estate contain a variety of woodland types including semi-natural broadleaved woodland, semi natural pine woodland and plantation woodland. These woodlands contain a number of interesting woodland plants including some locally uncommon species such as remote sedge and skullcap.

28. Cruden Bay

Cruden Bay forms a sheltered sandy bay along the east coast with rocky coastline to the north and south. Much of the sand dune grassland is now used as a golf course but the fore dunes and patches of semi-natural vegetation within the golf course support a good diversity of plants. These relatively base rich dunes contain plants such as lesser meadow rue and goats-beard. The dunes support a rich assemblage of invertebrates including the white colon moth which is found here at its northern limit.

29. Cullen to Whitehills Coast

This is a varied stretch of coastline with steep cliffs and rocky intertidal shores in the more exposed areas and low lying beaches and dunes in the sheltered bays. Geological interest is present in the form of Old Red Sandstone cliffs and glacially transported Jurassic clay. Boyne Quarry has exposures of glacial and interglacial features. Habitats include maritime grassland together with small areas of sand dune and shingle. It is one of the richer areas of the coastline botanically due to the presence of calcareous soils with oysterplant, sea spleenwort and shrubby sea blight. Sheltered grasslands are important for invertebrates such as small blue butterfly, and the cliffs for nesting coastal sea birds.

30. Culter Dam

This site contains one of the few rich lowland ponds in the area together with small areas of swamp and rush pasture. The site supports a variety of wetland plants and a good diversity of invertebrates including some largely southern species such as water scorpion.

31. Den of Auchmedden

This site is made up of a series of steep sided meltwater channels which are of geomorphological interest. The steep slopes are wooded in parts with rocky outcrops, grassland and scrub and small areas of rush pasture and wetland along the valley bottom. This site is botanically rich.

32. Den of Morpie

This site forms the wooded valley of the lower reaches of the South Esk. The rocky outcrops within the woodland are particularly rich botanically and the site as a whole supports a number of plants at the northern edge of their range. The site is also important for the locally rare butterbur moth.

33. Den of Pitlurg

This steep sided valley lies along the boundary with Moray. The Den is an excellent example of a large meltwater channel and is the most dramatic part of an integrated sequence of large channels within the area. The den contains botanically rich fen and wet woodland vegetation in the valley floor with long-established woodland with a rich ground flora together with bog, herb rich grasslands and rush pasture on the valley slopes.

34. Downie Point to Catterline Coast

This stretch of coastline is particularly important for breeding seabirds with Fowlsheugh containing the largest colony of breeding seabirds in the north east and one of the largest colonies in mainland Britain. The cliffs to the north of Fowlsheugh, whilst they do not support such high numbers, are still valuable for breeding birds. The site supports a good coastal flora with some base rich areas resulting in a variety of vegetation types and a good diversity of invertebrates. Geological features include a blowhole, a hanging valley and unusual platform weathering forms.

35. Dubbystyle

This site is made up of a mosaic of habitats including rush pasture with fen, bog scrub woodland and small patches of dry heath and acid grassland. The site is located within an intensively managed agricultural area and forms one of a suite of wetland sites in the area.

36. Elfhill

This small site forms a fairly steep sided river valley, with semi-natural broadleaved woodland, gorse scrub and acid grassland. The site supports a good diversity of plant species and is particularly important for the native bluebell which is abundant throughout the site.

37. Fetteresso

This site contains broadleaved woodland on the slopes of the railway line, down to the Carron Water. Neutral grassland and gorse scrub are also present. The site has a good woodland flora including the locally uncommon wood stitchwort.

38. Fetternear

This woodland forms one of a series of woodlands around the Kemnay area. It lies along the River Don and is largely dominated by birch with oak, ash and small stands of aspen. Wetter areas within the woodland contain willow scrub and a good variety of wetland plants.

39. Feughside

Feughside is an extensive area of moorland and forest which is primarily of geomorphological interest. The site represents the best part of a more extensive fluvio-glacial complex together with a variety of fluvial features. The site includes Clachnaben which is a good example of a granitic tor. The woodland and forest contain some locally rare pine woodland plant species.

40. Findon

The coastal heathland of Findon Moor together with adjacent maritime cliff and slope make up this site. These habitats support a good diversity of plants including field gentian which is locally uncommon. The sea cliffs are important for breeding colonies of kittiwake and razorbill.

41. Forest of Birse

One of the few remnants of native Caledonian pinewood is present within this site together with large areas of self-seeded and plantation woodland, moorland and grassland. Riparian

woodland along the Feugh is spreading up some of the tributaries to the south. The site is important for a number of pine woodland birds.

42. Foudland

Features of geological interest present are on the higher parts of the Hill of Foudland and adjacent hills, including disused quarries with exposures of igneous rocks and fossils. On the slopes to the north a suite of fluvio-glacial features, mainly meltwater channels, is clearly visible and readily accessible from the roadside.

43. Fraserburgh Bay

A relatively large site supporting a variety of coastal habitats including sand dunes with marsh, coastal grassland and sea shore. Small areas of saltmarsh and reed bed occur along the River Philorth. The site supports a diverse range of plant and bird species.

44. Gannochy

This is a narrow, wooded, rocky gorge forming the valley of the River North Esk, on the Aberdeenshire/Angus border. The gorge and its adjacent woodland are of particular importance for mosses, liverworts and lichens as well as the insects, with a number of nationally rare species. The gorge itself is also of geological importance for understanding the earth movements of the Midland valley area during the Devonian period and their effect on Old Red Sandstone sediments. Evidence of the Highland Boundary Fault is clearly visible.

45. Gardenstown to Strahangles Point Coast

A stretch of rocky coastline with steep cliffs including Troup Head which demonstrates good examples of complex of meltwater channels and other deglaciation phenomena. The site also contains classic cliff coastal features including conglomerate cliffs and a cobble beach in Pennan Bay. The coastal cliffs support a variety of habitats including coastal grassland and heathland together with rocky cliffs and shingle beaches. A rich diversity of plants including some upland species and other rare or localised species are present and this coastline, especially where sheltered, is important for invertebrates. The coastal cliffs support large numbers of breeding seabirds with breeding guillemots, kittiwakes, razorbills, puffins and fulmars and Scotland's only mainland gannet colony at Troup Head.

46. Gight

A section of the valley of the River Ythan between Fyvie and Methlick which includes the floodplain of the river together with the steep wooded valley sides. Gight Woods forms part of the site and is one of the largest and least disturbed native woodlands in lowland Aberdeenshire and one of only a few oak woodlands in the north east. The topographic character of this section of the Ythan valley is of a form which is not found elsewhere in Buchan.

47. Govals

Good exposures of igneous rocks are found within this disused quarry. The site can be viewed from nearby footpaths.

48. Harestone Moss

Harestone Moss is an extensive area of acid grassland, wet woodland, fen and reedbed together with neutral grassland to the north. The site is dissected east to west by a minor road. The site supports a good range of plants of wetland and nutrient poor habitats. A good diversity of invertebrates have been recorded from this site, including small pearl bordered fritillary and the moth *Acleris effractana* which is known from only a few sites in the north east.

49. Harestone/Sheils Quarry

A disused quarry which illustrates an exposure of metamorphic rocks and traces of surface processes.

50. Hawkshill

This is a relatively large site made up of a mosaic of wetland, woodland and heathland habitats. These habitats support a good diversity of plants and invertebrates including a number of rare moths. Much of the site is currently managed as a golf course with habitat patches retained within the course. These habitats provide connectivity with the River Don corridor and surrounding woodland.

51. Hill of Towanreef

An extensive area of undulating moorland together low hills and their associated valleys. The higher ground is covered by blanket bog and upland heathland with juniper scrub. Outcrops of serpentine rock around the Hills of Towanreef and Creagdearg support an associated flora. On the lower ground and valley slopes habitats include base rich flushes, woodland, plantation and grassland. The Hill of Creagdearg is of geological interest with excellent exposures of two types of igneous rocks. This site sits along the boundary with Moray.

52. Howe of Cromar

This extensive area of geomorphological interest lies within the pre-glacial basin of the Howe of Cromar, one of a number of major topographic basins in north east Scotland. The site illustrates a range of fluvio-glacial landforms and contains many areas of semi-natural habitat including numerous small patches of semi-natural broadleaved woodland, marshy grassland, fen and long-established pine woodland. These habitats support a good diversity of plant and invertebrate species including the pearl bordered fritillary butterfly.

53. Inverbervie to Johnshaven Coast

Along this section of coastline Old Red Sandstone has weathered to give a broad wave cut platform with a large intertidal zone which is important for wading birds dependent on the rock shore, and for sea ducks offshore. The rocky cliffs to the north of Inverbervie hold an important colony of breeding cormorants. Habitats within the estuary of the Bervie water support a number of locally interesting plants such as lesser hawkbit and agrimony.

54. Kennethmont

A small basin fen with mainly wet woodland, lowland fen and rush pasture located on an isolated area of basin peat. The site supports a diversity of fen plant communities including good populations of some locally uncommon species such as lesser butterfly orchid and coralroot orchid.

55. Kingcausie

This site is made up of the valley of the Crynoch Burn and its associated riparian habitats, together with mixed woodland at Cleanhill Wood and pine woodland of Durris Forest. These habitats contain a good diversity of plants including some locally uncommon species such as herb paris. A small quarry contains exposures of metamorphic rock. The line of the Western Peripheral Route has been removed from this site.

56. Kinkell Belt

This site forms the wooded banks at the confluence of the Rivers Don and Urie. The long-established woodland contains a mixture of tree species with good ground flora of relatively common species. This woodland provides connectivity to adjacent woodlands within the local area.

57. Leuchar Moss

A relatively large area of wet and peatland habitats which lies across the border between Aberdeenshire and Aberdeen City. On the lower ground species rich rush pasture is present together with wet heathland and willow scrub. On the drier ground is dry heathland and acid grassland. These wetland and peatland habitats have a varied flora with a good diversity of species.

58. Little Wood, Donside

Little Wood is a small area of woodland on the south facing slope of Black Hill on the north bank of the River Don. Oak woodland covers the lower slopes with upland birch woodland on the hillside above and dry heathland on the upper slopes. The woodland flora is diverse with typical woodland species such as bluebell. A variety of woodland birds are present.

59. Loch of Leys

Loch of Leys is a large area of fen and reedbed habitat and this, together with a smaller area of fen habitat to the south and surrounding woodlands and wetlands, forms a valuable mosaic of habitats. These habitats support a very good diversity of wetland and woodland plants and invertebrates together with a number of breeding and roosting birds. The woodlands are an important stronghold for red squirrel.

60. Loch of Park

A relatively large site with a variety of habitats including large areas of open fen and wet woodland which are still very wet despite historical drainage schemes. There are also areas of acid and neutral grassland, heath, rush pasture, bog, swamp, coniferous woodland and very small areas of reedbed. A high diversity of plant species is present including some locally important species such as coralroot orchid and lesser butterfly orchid.

61. Loch of Skene

Loch of Skene forms a large body of open water surrounded by wet woodland, pine woodland, reedbed and heathland, with smaller patches of fen and bog. The wet willow woodland is one of the largest of this habitat type within Aberdeenshire. The loch has an interesting aquatic flora and attracts a good variety of birds including breeding and winter visitors, and a good diversity of invertebrates.

62. Lochlundie Moss

Lochlundie Moss is one of the largest remaining lowland raised peat bogs in north east Scotland. The bog remains wet and supports a typical array of peatland species. Around the margins of the bog acid grassland and gorse scrub is present together with small ponds and patches of woodland. These habitats support a good diversity of heathland plant species including some locally important species such as lesser twayblade.

63. Lumsden Moss

This site is a lowland raised bog which has been colonised by pine and birch woodland in part and planted in others. The central part of the site remains as bog habitat which supports a good variety of heathland and wetland plant species.

64. Macterry Moss

Macterry Moss lies within a fairly intensively managed agricultural area and supports fen and wet woodland habitats together with small areas of acid grassland and birch woodland, dry heath and gorse scrub. . The woodland has expanded in recent years into the fen habitat but the site remains very wet and supports a good variety of plant and invertebrate species. The site is broadly associated with Windy Hill and other nearby sites.

65. Meikle Loch

This site comprises two lochs surrounded by wetland and swamp habitat, together with species rich grassland on the Kippet Hills. The site is of European importance for the pink-footed geese. The site is also of importance for its fluvio-glacial land forms which surround the loch, and for its stratigraphy which includes early Pleistocene materials not found on land anywhere else in north east Scotland.

66. Mergie

An extensive valley site alongside the Cowie Water with neutral and acid grassland, broadleaved and coniferous woodland, wet heath, scrub, bracken, bog, pond, rivers and rush pasture. A good diversity of plant species are present within these habitats with some locally important species such as lesser twayblade and bog myrtle.

67. Moss Maud

Moss Maud is made up of a mosaic of heathland and woodland habitats. The central area of lowland raised bog is surrounded by open pine and birch woodland, with acid grassland and patches of woodland on the Hill of Beltie. The site supports a number of locally important species such as wild bluebell, common wintergreen, common rock rose and the small pearl bordered fritillary butterfly. The site includes Craighash Quarry in the south of the site which is a working quarry displaying a particularly fine example of solifluction (soil flow) movement of the weathered material, typical of periglacial conditions associated with the end of an Ice Age.

68. Muchalls to Stonehaven Coast

The rocky cliffs and shore forming this stretch of coastline have a rich coastal flora. Small areas of sand dune, shingle, flush and salt marsh are present along the shoreline. Species associated with base-rich soils are present and this is a key site for invertebrates of base rich habitats. The shores around Garron Point/Skatie Shore support diverse populations of marine algae and the cliff grasslands in the southern part of the sites are the habitat of an important population of a rare whorl snail. The coastal outcrop of the Highland Boundary Fault occurs just north of Stonehaven.

69. Newburgh to Balmedie Coast

A stretch of sandy coastline between Newburgh and Balmedie with extensive fixed and fore dunes together with dune pasture, marshes and heath. The diverse flora of these areas supports a variety of invertebrates. The Links are well-known for a range of migrant birds and the inshore waters for large moulting and passage flocks of seaduck and divers. Foveran Links is an important part of the Sands of Forvie coastal area to which it is closely linked by a variety of environmental processes.

70. Pitfour Lake, Old Deer

Pitfour Lake forms a fairly large area of standing open water which supports a good variety of plants and in particular, a number of pondweeds. The loch is surrounded by a mix of woodland types and scrub.

71. Pitscurry Moss

A fairly small area of wet meadow, wet woodland and birch woodland which supports a good diversity of plant species including some locally uncommon species such as creeping lady's tresses.

72. Portlethen Moss

Portlethen Moss is a remnant of a once much larger area of bog habitat that is now surrounded by housing and roads. Although now smaller and drier, it is still a valuable area of lowland raised bog and rush pasture together with gorse scrub and planted woodland.

The site supports a good diversity of heathland and wetland species. The Moss is well used by local residents for recreation and education.

73. Portlethen Village to Newtonhill Coast

This coastal site is made up of cliffs, coastal grassland, heathland and gorse scrub. These habitats support a good diversity of coastal and heathland plant species and the cliffs are important for nesting birds.

74. Pronie Lochs

This is a relatively small site made up of two lochs, the larger Pronie Loch and the smaller Wichlock Loch. Between the lochs fen and marsh is fed by streams draining from the higher ground to the east and west. These habitats support a good diversity of wetland and heathland plant species and a variety of invertebrates. The lochs support a number of breeding and roosting birds.

75. Rattray Head to Peterhead Coast

A variety of coastal habitats including sand dunes with a good diversity of plant species including several species that are rare in north east Scotland such as oysterplant and Baltic rush. Agricultural fields adjacent to the coastline are important for roosting and feeding geese, waders and wildfowl and at times can hold thousands of birds.

76. Red Moss, Kemnay

Former raised bog covers the northern part of this site, and although now largely covered with Scots pine woodland, some wet woodland, rush pasture and fen remain. The southern part of this site is predominantly birch woodland and forms one of a series of woodlands around the Kemnay area.

77. Red Moss, Netherley

A relatively large area of lowland raised bog with associated habitats of fen, rush pasture, wet woodland and birch woodland. The site supports a rich diversity of plant species including coralroot orchid and lesser twayblade.

78. Red Moss, Parkhill

Two adjacent areas of bog and wet woodland habitat support a good diversity of plants and invertebrates in the local context including cranberry and variegated horsetail which are locally uncommon. Red Moss is a good example of its habitat type and lies close to other areas similar habitat.

79. Reidside Moss

A fairly extensive area of open bog habitat surrounded by wet woodland, birch woodland and rush pasture. The site supports a good diversity of plant species and is close to an area of similar habitat at Moss of Crombie. The locally rare large heath butterfly is found on this site.

80. River Dee

The River Dee system is one of the most natural within the British Isles. Geomorphological interest is present in the form of a series of glacial and fluvio-glacial landforms and sediments. Habitats include oak and birch woodland, wet woodland, shingle banks and species rich grasslands. These habitats support a good diversity of plants and invertebrates together with a good assemblage of birds. The River Dee is a major European and global stronghold for the freshwater pearl mussel and is also important for otter and salmon.

81. Rora Moss

Rora Moss contains a lowland raised bog with areas of acid grassland, ponds and rush pasture with a good variety of peatland species. The southern part of the site is currently under commercial forestry with bog habitat remaining in the unplanted areas. This area has potential for restoration to peatland habitat.

82. St Cyrus

This is an extensive coastal site which includes a variety of geological and geomorphological features. The coastal landforms provide a variety of dune and coastal grassland habitats, saltmarsh, maritime grassland and rocky shore together with woodland within the steep sided dens to the north of the site. The relatively mild sheltered climate and base rich soils make this one of the richest and most important botanical locations in north east Scotland.

83. Sinclair Hills

The site contains extensive fluvio-glacial deposits which form a good suite of landforms which are of Scottish significance, and form part of a set of features within the surrounding area. This site is mainly of geomorphological value but does have some small areas of botanical interest.

84. Skelmanae Raised Bogs

A series of three lowland raised bogs at Red Moss of Blackrigg, Auchmacleddie and Prattshaugh. Much of the peat has been cut over but some patches of primary bog remain and the sites remain quite wet. Overall these three areas support a variety of peatland and wetland habitats with a diversity of plant species.

85. Stirling Hill/Dudwick/Skelmuir Hill

This site is made up of three areas, a large area at Stirling Hill and two smaller areas at Hill of Dudwick and Skelmuir Hill. The main interest of the site is the preglacial Buchan Gravels Formation which blankets the ridge. Related deposits also occur at nearby Windyhills from which they differ by being rich in flints. The site is considered to be of a unique nature in a Scottish context. The site also includes the Den of Boddam glacial meltwater channel.

86. Strathbeg to Rattray Coast

This site includes the Loch of Strathbeg together with surrounding swamp, reedbed, fen, marsh and wet woodland. Loch of Strathbeg is one of the largest coastal freshwater lochs in the UK, and is probably the finest example of a dune-dammed loch. On the coastal side of the loch is a large area of coastal sand dune. Inland, agricultural fields are important for a variety of resident and migrant birds. The site has a good flora and is of significant ornithological importance. The coastal part of the site is of geomorphological interest with a classic raised spit which in its development through varying land-sea relationship has led to the establishment of the loch.

87. Strathfinella

A large site which illustrates deeply weathered granite and an extensive network of fluvio-glacial meltwater channels. Strathfinella Hill lies across a valley formed along the line of the Highland Boundary Fault Complex. Of particular value for their botanical interest is the Slack of Birnie, a steep sided den with rocky outcrops, screes and flushes supporting some locally rare plants such as mossy saxifrage and mountain male fern; and the loch at Glensaugh which supports good aquatic vegetation.

88. Sunnybrae Moss

This is a small area of fen and grassland. Although small in size this site contributes to a network of wetland and fen habitats within the local area which are important for the small pearl bordered fritillary butterfly.

89. Tarlair to Gardenstown Coast

A mostly rocky stretch of coastline with steep coastal cliffs and a shingle/rocky shoreline. The site also includes the Den of Findon at Gardenstown which is made up of steep sided dens, which lead down to the sea. The site is important for its geology and the sediments at Castle Hill, to the west of Gardenstown, are important for understanding glacial processes. The Findon ravine contains a small exposure on the eastern side and is a locality for the Gamrie Fish Bed in which fossil specimens of Middle Devonian have been found. This coastline supports a particularly diverse range of maritime habitats and a number of locally rare plants such as spring squill and purple saxifrage. This stretch of coastline, and in particular the sheltered Bay at Tarlair, is valuable for a variety of invertebrates. The extensive seacliffs support large breeding colonies of seabirds which are of international importance.

90. Tom's Forest

One of a suite of woodland sites around the Kemnay area, this mainly birch woodland with areas of open grassland is rich in invertebrates.

91. Tore of Troup

An extensive site made up of moorland together with a series of steep sided valleys running northwards to the coast near Pennan. These steep sided dens contain some of the best examples of native woodland in the lowlands of Aberdeenshire. The woodlands include some species uncommon in north east Scotland such as hay-scented buckler-fern, ramsons, wild hyacinth, moschatel, woodruff, oak fern and wood vetch. The variety of habitats and vegetation, together with the sheltered nature of the dens makes this an important entomological site. The site is of geomorphological interest with a complex of meltwater channels and other de-glaciation features giving a distinctive landscape.

92. Towie Wood

Towie Wood represents one of the most compact and well-exposed localities to feature the characteristics of Ordovician-age 'Younger Basic' intrusions that are prevalent in the north-eastern Grampian area of Scotland. Importantly, the site reveals features that aid in our understanding of the effects contamination of basic magmas and hence is of both national and international importance.

93. Wartle Moss

This site is a fairly extensive area of very wet lowland fen with willow and birch carr woodland. The basin mire is one of the largest and least disturbed in north east Scotland and is slightly unusual in having base rich underlying rocks. The site supports a good diversity of plants and invertebrates.

94. Whitewells Moss and Culvie Wood

This site forms an extensive area on the slopes of Culvie Hill. On the higher ground heathland is present, with fen and willow scrub in the wetter areas at the base of the hill. These habitats support a good diversity of plant species including fragrant orchid and lesser twayblade, and a good variety of invertebrates.

95. Windyhills

This relatively large site is of geological value due to the presence of the Buchan Gravels, considered to mark the former course of a preglacial river. These are similar to those

present at Stirlinghill, but here are characterised by the presence of quartzite rather than flint. The site supports a variety of habitats including two areas of broadleaved and pine woodland, grassland, heathland small areas of fen and rush pasture. These support a good diversity of plants and invertebrates.